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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,769	05/02/2001	Daniell Stevens	06998-074001	4960

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EXAMINER

NOLAN, DANIEL A

ART UNIT	PAPER NUMBER
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2654

13

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/845,769

Applicant(s)

STEVENS ET AL.

Examiner

Daniel A. Nolan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-32 is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4-14 is/are objected to.
- 8) ☒ Claim(s) 33-53 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 13.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9 & 10. 6) ☐ Other: _____

Examiner-Initiated Interview Summary

Application No.

09/845,769

Applicant(s)

STEVENS ET AL.

Examiner

Daniel A. Nolan

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All Participants:

(1) Daniel A. Nolan.

(2) John F. Hayden.

Status of Application: _____

(3) Diana Diberdino.

(4) _____

Date of Interview: 13 November 2003

Time: 10 AM

Type of Interview:

- ☒ Telephonic
☐ Video Conference
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes ☐ No
If Yes, provide a brief description:

Part I.

Rejection(s) discussed:

Claims discussed:

1-32 & 33-53

Prior art documents discussed:

Part II.

SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:

Restriction required to distance invention I (1-32, to correct text) from invention II (33-53, to recognize speech)

Part III.

- ☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.
- ☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.


(Examiner/SPE Signature)

(Applicant/Applicant's Representative Signature – if appropriate)

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-32 for *correcting incorrect text*, drawn to Speech Signal Processing, Recognition, Specialized Equations Or Comparisons, Probability, classified in class 704, subclass 240.
 - II. Claims 33-53 for a *computer-implemented method for speech recognition*, drawn to Speech Signal Processing, Recognition, Word Recognition, Preliminary Matching, classified in class 704, subclass 252.

The inventions are distinct, each from the other because of the following reasons:

- Inventions I and II are related as subcombination and combination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)).
- In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because invention I is for *correcting incorrect text*. The subcombination has separate utility such as correcting OCR (Optical Character Reader) text documents.

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- Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
2. During a telephone conversation with Diana Diberdino on 13 November 2003, a provisional election was made without traverse to prosecute the invention of I, claims 1-32. Affirmation of this election must be made by applicant in replying to this Office action. Claims 33-53 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

5. The abstract of the disclosure is objected to because:

- The 2nd sentence is incomplete (in line 4).
- The Abstract of the Disclosure is not a brief narrative of the disclosure as a whole.

The Summary (page 6) in the Provisional Application 60/201,257 (which has been incorporated in its entirety) would satisfy this requirement if brought forward to serve as a replacement Abstract in the immediate Application.

Correction is required. See MPEP § 608.01(b).

6. The use of trademarks such as "Dragon Naturally Mobile Pocket Recorder ®", "Microsoft Outlook™" and others (as on page 19 lines 19-20, page 21 line 17, page 22 line 5) has been noted in this application. These should be capitalized *wherever* they appear and be accompanied by the generic terminology or symbol.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Specifying Error Correction In Speech Recognition by Indicating the General Area"

Claim Objections

8. Claims 5 and 14 are objected to because of the following informalities:

- Claim 5 contains the adverb approximately. It is suggested to use the more standard word, '*substantially*'.
- Claim 14 as phrased becomes subject to interpretation as to whether both steps of (a) *designating a word adjacent to the original transcript word in the original transcript as the original transcript word* and (b) *designating a word adjacent to the alternative transcript word in the alternative transcript as the alternative transcript word* depend on the condition if (c) *the original transcript word is not identical to the alternative transcript word*, and (d) *a time at which the original transcript word begins is near a time at which the alternative transcript word begins* because of the unmatched doubled elements on either side of the "equation".

To prevent future errors of misunderstanding, the Examiner is proceeding with the understanding that line 3 begins with text to the effect that read "*both steps of...*" and that line 6 begins with the phrase "*both conditions are met that...*" to more clearly indicate that, for both steps to take place, both conditions are required.

Appropriate correction is required.

Drawings

9. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because:

- The description of Figure 9 references "*cable 1415*" (page 20 line 14) that is not in the drawing.
- The description of Figure 20 references item "*2600*" (page 31 line 15) that is not in the drawing.
- Items 1505, 1620, 1625, 1610 and 1615 are not mentioned in the description of figure 5 (page 19 lines 13-22). Since Figures 6-10 all have common components and appear to suffer the same condition, it is suggested that the descriptions be preceded by a short overview mentioning those elements shared by the figures.

10. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Chen et al

12. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al (U.S. Patent 5,864,805 A).

13. Regarding claim 1, the invention for error correction in a continuous dictation system by Chen et al reads on the steps of the claim for *correcting incorrect text associated with recognition errors in computer-implemented speech recognition* as follows:

- Chen et al (203 in figure 2) reads on the features of *performing speech recognition on an utterance to produce a recognition result for the utterance* (see column 3 lines 1-10).
- Chen et al (211←→209 in figure 2) reads on the step of *receiving a selection of a word from the recognized utterance*, where Chen et al teaches the feature that *the selection indicating a bound of a portion of the recognized utterance to be corrected* (see column 5 lines 1-2);

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- Chen et al reads on the steps of *comparing a 1st alternative transcript to the recognized utterance to be corrected and of producing a 1st recognition correction based on the comparison* (see 704 in figure 7);

The recursive processing Chen et al teaches in producing a list of multiple alternatives (in column 7 lines 2-4) makes the steps of *comparing a 2nd alternative transcript to the recognized utterance to be corrected; and producing a 2nd recognition correction based on the 2nd comparison* inherent that subsequent alternatives would be found and presented after the 1st, beginning with the 2nd -on;

- Chen et al reads on the step of *replacing a portion of the recognition result with one of the 1st recognition correction and the 2nd recognition correction* (see column 4 lines 8-14);
- Teaching that an alternative order may be derived by "*rearranging the previous list according to the match of the start and end times*" (see column 4 lines 48-49) i.e., that the alternatives can be *ordered on the basis of length* inherently requires that the alternatives be of different lengths. Therefore, Chen et al (405 in figure 4) reads on the feature that a *duration of the 1st recognition correction differs from a duration of the 2nd recognition correction* (see column 4 lines 42-50), and
- Chen et al teaches the feature that *the portion of the recognition result replaced includes at one bound a word indicated by the selection* (see column 4 lines 48-49) *and extends for the duration of the one of the 1st recognition correction* (from start to end times in column 4 line 48) *and the 2nd recognition correction with which the portion is replaced.*

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Chen et al

16. Claims 2 & 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (U.S. Patent 5,864,805 A).

17. Regarding claim 2, the claim is set forth with the same limits as claim 1. Chen (from column 3 line 66 through column 4 line 1) discloses selecting text by

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conventional GUI means but does not specify that indicating only the *beginning* would suffice. Chen et al (see column 6 line 16) subsequently discloses that the selection may "start at the beginning", thereby reading on the feature where *the selection indicates a beginning bound of a recognized utterance to be corrected*.

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method and/or teachings of Chen (in selecting alternatives) to the device/method of Chen (in selecting that which is to be corrected) to reduce the burden on the user of having to master different ways of indicating similar transcriptions by having a common routine.

18. Regarding claim 3, the claim is set forth with the same limits as claim 1. Chen (from column 3 line 66 through column 4 line 1) discloses selecting text by conventional GUI means but does not specify that indicating only the *ending* would suffice. Chen et al subsequently discloses (in column 6 lines 11-13 and 15) that the selection may "select a portion" of the text, thereby reading on the feature where *the selection indicates a finishing bound of a recognized utterance to be corrected*.

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method and/or teachings of Chen (in selecting alternatives) to the device/method of Chen (in selecting that which is to be corrected) to reduce the burden on the user of having to master different ways of indicating similar transcriptions by having a common routine.

Allowable Subject Matter

19. Claims 4-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. Claims 15-32 are allowed.

21. The following is a statement of reasons for the indication of allowable subject matter:

- The present invention is directed to *specifying that speech (words or phrases) which is to be corrected as a result of mis-recognition.*
- Claims 4, 15 and 16 identify the uniquely distinct feature *"searching in time, through the recognized utterance relative to the selected word, and through the alternative transcript relative to the test word, until finding a word common to the recognized utterance and the alternative transcript."*

The closest prior art, Chen et al, discloses *"selecting from the alternative transcript a test word that is not identical to the selected word and that begins at a time that is nearest a time at which the selected word begins"* but fails to anticipate or render the above underlined limitations obvious.

- Regarding claim 18, the feature in the claim of *searching the text document for additional instances of the corrected text using the specific confusability matrix* is

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neither anticipated nor found in obvious combination in the prior art of record, where the closest prior art of Young et al limits the teaching to *the results of the confused pronunciation match correct previously-misrecognized text*.

- Claims 5-14, 17 and 19-32 depend on claims that were found to be allowable and so are they allowable as a consequence.

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Roberts et al (U.S. Patent 5,027,406 A) interactive speech recognition and training.
- Leontiades et al (U.S. Patent 5,909,667 A) fast voice selection of error words in dictated text.
- La Rue (U.S. Patent 5,748,840 A) improving the reliability of recognizing words in a large database when the words are spelled or spoken.
- Young et al (U.S. Patent 6,064,959 A) error correction in speech recognition.
- Niyogi et al ("Incorporating Voice Onset Time To Improve Letter Recognition Accuracies", Proceedings of the 1998 IEEE International Conference on Acoustics, Speech, and Signal Processing, May 1998) incorporating distinctive features into a statistically based speech recognizer can reduce error rates.
- Iyer et al ("Analyzing And Predicting Language Model Improvements", 1997 IEEE Workshop on Automatic Speech Recognition and Understanding, December 1997)

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models traditionally developed using perplexity as a measure fail to account for the acoustic confusability between words and for search errors in a recognizer.

- Haimi-Cohen (U.S. Patent 6,374,221 B1) automatic retraining of a speech recognizer while using reliable transcripts.
- Pakhomov et al (U.S. Patent 6,535,849 B1) generating semi-literal transcripts for speech recognition systems.
- Sabourin et al (U.S. Patent 6,073,099 A) predicting auditory confusions using a weighted Levenshtein distance.
- IBM ("Technical Disclosure Bulletin NB900315, Automatic Correction of Viterbi Misalignments", March 1990) early alignment of phonemes as part of correction.
- Hon et al (U.S. Patent 5,963,903 A) dynamically adjusted training for speech recognition.

23. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Daniel A. Nolan at telephone (703) 305-1368 whose normal business hours are Mon, Tue, Thu & Fri, from 7 AM to 5 PM.

If attempts to contact the examiner by telephone are unsuccessful, supervisor Richemond Dorvil can be reached at (703)305-9645.

The fax phone number for Technology Center 2600 is (703)872-9314. Label informal and draft communications as "DRAFT" or "PROPOSED", & designate formal communications as "EXPEDITED PROCEDURE". Formal response to this action may be faxed according to the above instructions,

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or mailed to: Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or hand-delivered to: Crystal Park 2,
2121 Crystal Drive, Arlington, VA,
Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 Customer Service Office at telephone number (703) 306-0377.

Daniel A. Nolan
Examiner
Art Unit 2654

DAN/d
November 14, 2003

A handwritten signature in black ink, appearing to read 'Daniel A. Nolan', with a large, stylized loop at the end.

DANIEL NOLAN
PATENT EXAMINER